

1 1. (currently amended) A method of adding a watermark to a sequence of executable instructions
 2 to render the sequence authenticatable,
 3 the method comprising the steps of:
 4 receiving the sequence of executable instructions and a key; and
 5 using the key to modifying the sequence of executable instructions in a manner determined
 6 by the key so that the watermark may be obtained from the modified sequence, the sequence being
 7 modified such that the usefulness of the modified sequence for the sequence's intended purpose is
 8 not affected by the modifications made thereto and the watermark representing a watermark value
 9 which may be employed to authenticate the sequence, the sequence being modified such that the
 10 usefulness of the sequence for the sequence's intended purpose is not affected thereby.

1 2. (canceled)

1 3. (currently amended) The method set forth in claim 2 wherein the step of modifying the
 2 sequence includes the steps of:
 3 using the key to determine locations in the sequence including modification locations at
 4 which the sequence is to be modified; and
 5 modifying the sequence at the modification locations such that the locations specified by
 6 the key represent the watermark value,
 7 whereby the watermark value may be obtained from the modification locations.

1 4. (original) The method set forth in claim 3 wherein the step of modifying the sequence includes
 2 the step of:
 3 inserting one or more executable instructions at each of the modification locations, the
 4 inserted instructions having no effect on any output from the execution of the sequence of
 5 instructions.

1 5. (original) The method set forth in claim 4 wherein:
 2 the instructions at the locations specified by the key represent values of digits of the
 3 watermark value.

- 1 | 6. (original) The method set forth in claim 2-1 further comprising the step of:
2 | providing the watermark value to an authenticating entity that authenticates the
3 | watermarked code.
- 1 | 7. (original) The method set forth in claim 2-1 further comprising the step of:
2 | providing the key to the authenticating entity.
- 1 | 8. (currently amended) The method set forth in claim 1 wherein:
2 | the modified sequence of executable instructions is modified such that when the modified
3 | sequence of executable instructions is executed, execution state is produced which has a property
4 | that depends on the key,
5 | whereby the watermark value is a description of execution state from the modified sequence.
- 1 | 9. (currently amended) The method set forth in claim 8 wherein:
2 | the execution state is a stack depth graph.
- 1 | 10. (original) The method set forth in claim 9 wherein:
2 | the execution state is output from the execution.
- 1 | 11. (original) The method set forth in claim 10 wherein:
2 | the property is an order of elements in the output.
- 1 | 12. (original) The method set forth in claim 10 wherein:
2 | the property is an additional element in the output.
- 1 | 13. (original) The method set forth in claim 10 wherein:
2 | the property is a class of an element in the output.
- 1 | 14. (original) The method set forth in claim 10 wherein:
2 | the property is a constraint that is satisfied by elements of the output.

1 15. (original) The method set forth in claim 8 further comprising the step of:
2 providing a description of the produced execution state to an authenticating entity that
3 authenticates the watermarked code.

1 16. (original) The method set forth in claim 15 further comprising the step of:
2 providing the key to the authenticating entity.

1 17. (currently amended) The method set forth in claim 1 further comprising the step of
2 providing the key to an authenticating entity that authenticates the sequence.

1 18. (original) A method of authenticating a watermarked sequence of executable instructions, the
2 watermark having been produced by modifying the sequence according to a key such that certain
3 of the instructions in the sequence represent a watermark value,
4 the method comprising the steps of:
5 receiving the watermarked sequence or a copy thereof;
6 using the key to locate the certain instructions in the received sequence and read the
7 watermark value; and
8 using the watermark value to determine whether the received sequence is authentic.

1 19. (original) The method of authenticating set forth in claim 18, the method further comprising
2 the step of:
3 receiving another watermark value; and
4 in the step of using the watermark value to determine whether the received sequence is
5 authentic, the watermark value is compared to the other watermark value.

1 20. (original) The method of authenticating set forth in claim 19, the method further comprising
2 the step of:
3 receiving the key.

1 21. (currently-amended) A method of authenticating a watermarked sequence of executable
2 instructions, the watermark having been produced by modifying the sequence according to a key
3 such that when the sequence is executed, execution state is produced,
4 the method comprising the steps of:
5 receiving a description of the execution state; and
6 authenticating the watermarked sequence by confirming that the received description
7 describes execution state produced by an execution of the modified sequence.

1 22. (currently amended) The method set forth in claim 20-21 further comprising the step of:
2 receiving another description of the execution state, the other description describing
3 execution state produced by the execution of the modified sequence; and
4 in the step of authenticating, comparing the description and the other description.

1 23. (original) The method set forth in claim 22 wherein:
2 the other description is a stack depth graph.

1 24. (currently amended) The method set forth in claim 20-21 wherein the execution state is output
2 from the execution, the output having a property which can be determined using the key and
3 the method further comprises the steps of:
4 receiving the output from the execution; and
5 the step of authenticating includes the steps of
6 receiving the execution state;
7 employing the key to determine the property; and
8 comparing the determined property with the received description.

1 25. (original) The method set forth in claim 24 wherein:
2 the determined property is an order of elements in the output.

1 26. (original) The method set forth in claim 24 wherein:
2 the determined property is an additional element in the output.

1 27. (original) The method set forth in claim 24 wherein:

2 the determined property is a class of an element in the output.

1 28. (original) The method set forth in claim 24 wherein:

2 the determined property is a constraint that is satisfied by elements of the output.